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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/544,220  | 08/02/2005  | Tetsuya Murakami     | AI 385NP            | 9471             |
| 23995 7590 04/15/2008<br>RABIN & Berdo, PC<br>1101 14TH STREET, NW<br>SUITE 500<br>WASHINGTON, DC 20005 |             |                      |                     |                  |
| EXAMINER  |             |                      |                     |                  |
| WINNER, TONY H  |             |                      |                     |                  |
| ART UNIT  |             | PAPER NUMBER         |                     |                  |
| 3611  |             |                      |                     |                  |
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| 04/15/2008  |             | PAPER                |                     |                  |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/544,220

**Applicant(s)**

MURAKAMI ET AL.

**Examiner**

Tony H. Winner

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 January 2008.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 3, 4, 6-11 and 13-17 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)  
3) ☒ Information Disclosure Statement(s) (PTO/CDC)  
Paper No(s)/Mail Date 1/31/08  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

***Acknowledgment***

1. Receipt of an RCE filed 1/31/08 has been acknowledged and entered.

***Withdraw Previously Allowed Claims***

2. The indicated allowability of claims 3, 4, 6-11, and 13-17 are withdrawn in view of the newly discovered references to Sasaki et al. (USPN. 6,938,722 B2) in view of Yoshikatsu et al. (JP 8-21499). Rejections based on the newly cited references follow.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9-11 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki (USPN. 6,938,722) in view of Yoshikatsu (JP 8-21499).

Sasaki discloses an electric power steering apparatus (figure 5) comprising:

- a. a reduction gear mechanism for reducing a rotation speed of an output shaft of the electric motor;

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b. a conversion mechanism for converting an output rotation of the reduction gear mechanism into an axial movement of a steerable shaft extending in a transverse direction of a vehicle;

c. a driven pulley (29) disposed so as to surround the steerable shaft;

d. an endless belt (30) for connecting a driving pulley (28) and the driven pulley (29);

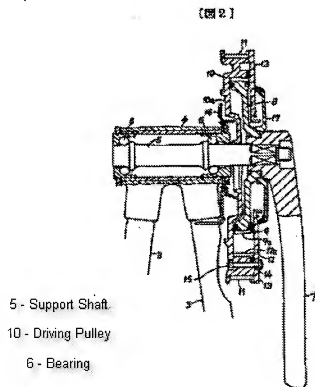
e. a housing (39a) for containing the driving pulley, the driving pulley having a through hole opened at the first end portion and the second end portion thereof, the input shaft (31) penetrating through the through hole of the driving pulley, and the input shaft comprising a pair of parts extending to both sides respectively with the driving pulley interposed therebetween, and the pair of parts of the input shaft being rotatably supported respectively by corresponding bearings (33 and 34) held by the housing, wherein housing further includes a connection housing (55, 53, 41, 40) integrally formed with a housing of the electric motor and attached to a housing of the reduction gear mechanism, the connection housing having a cylindrical part (55), and the cylindrical part of the connection housing being inserted into the housing of the reduction gear mechanism.

Sasaki lacks the reduction mechanism comprising: an inscribed gear having external teeth and a circumscribed gear having internal teeth in which the inscribed gear is inscribed.

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Yoshikatsu teaches an apparatus for bicycle (figure 2), wherein the belt driving system, includes all of the structure of the claimed invention, which allows the system to suppresses vibration and noise.

Based on the teaching of Hirose, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the power steering of Sasaki to include the belt driving system of Hirose so as to provide the system with a means to obtain a higher rotational speed.



Regarding claims 10-11, 16, and 17 Sasaki as modified by Hirose meets all of the claimed limitations.

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4. Claims 3-4, 6-8, and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki (USPN. 6,938,722) in view of Hirose et al. (USPN. 4,768,998).

Sasaki discloses an electric power steering apparatus (figure 5) comprising:

- a. a reduction gear mechanism for reducing a rotation speed of an output shaft of the electric motor;
- b. a conversion mechanism for converting an output rotation of the reduction gear mechanism into an axial movement of a steerable shaft extending in a transverse direction of a vehicle;
- c. a driven pulley (29) disposed so as to surround the steerable shaft;
- d. an endless belt (30) for connecting a driving pulley (28) and the driven pulley (29);
- e. a housing (39a) for containing the driving pulley (28), the driving pulley having a through hole opened at the first end portion and the second end portion thereof, the input shaft (31) penetrating through the through hole of the driving pulley, and the input shaft comprising a pair of parts extending to both sides respectively with the driving pulley interposed therebetween, and the pair of parts of the input shaft being rotatably supported respectively by corresponding bearings (33 and 34) held by the housing; and
- f. the driving pulley being in the shape of a cylinder and having a first end portion and a second end portion, the first end portion of the driving pulley being closer to the

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output shaft of the electric motor than the second end portion, and at least the first end portion of the driving pulley being opened.

Sasaki lacks the reduction mechanism comprising: an inscribed gear having external teeth and a circumscribed gear having internal teeth in which the inscribed gear is inscribed.

Hirose teaches an apparatus for bicycle, wherein the belt driving system, includes all of the structure of the claimed invention, which allows the system to obtain higher rotational speed.

Therefore, it would have been obvious to one skilled in the art to modify the reduction mechanism of Sasaki to include the inscribed/circumscribed gearing system as taught by Hirose, for the reasons set forth above.

Regarding claims 3-4 and 6-8 Sasaki as modified by Hirose meets all of the claimed limitations.

Regarding claims 14-15 Sasaki as modified by Hirose is disclosed above but lacks a pair of guide parts opposed the first and second end portions of the driving pulley. However, Sasaki (figure 19) teaches a pair of guide parts opposed the first and second end portions of the pulleys for the purpose of restricting axial movement. Therefore, it would have been obvious to one skilled in the art to include the teaching of figure 19 of Sasaki, for the reasons set forth above.

***Conclusion***

5. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Anthony H. Winner whose telephone number is (571) 272-6654. The examiner can normally be reached on Monday-Friday from 9:30 am to 6:30 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lesley Morris, can be reached at (571) 272-6651. The fax phone number for the organization where this application or proceeding is (571) 273-8300.
6. Information regarding the status of an application may be obtained from the Patent Application Information-Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).
7. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-6584.

/Tony H. Winner/  
Primary Examiner  
April 11, 2008